What is claimed is:

1. A proton conductive solid polymer electrolyte comprising an acidic group-possessing polymer which has an acidic group and polybenzimidazole, wherein:

said acidic group-possessing polymer is a substance which is soluble in a solvent to dissolve a monomer for producing said polybenzimidazole; and

said acidic group-possessing polymer and said polybenzimidazole are compatibilized with each other.

2. The proton conductive solid polymer electrolyte according to claim 1, wherein said acidic group-possessing polymer is a substance which is soluble in polyphosphoric acid.

3. The proton conductive solid polymer electrolyte according to claim 1, wherein said acidic group of said acidic group-possessing polymer is in an amount not less than 3×10^{-3} mole per gram of said acidic group-possessing polymer.

4. The proton conductive solid polymer electrolyte according to claim 1, wherein said acidic group-possessing polymer is polysulfated phenylene sulfonic acid.

5. The proton conductive solid polymer electrolyte

according to claim 1, further containing a polymer having proton conductivity.

6. A method for producing a proton conductive solid polymer electrolyte comprising an acidic group-possessing polymer which has an acidic group and a basic polymer which is basic, said method comprising:

dissolving, in a solvent, said acidic group-possessing polymer and a monomer which produces polybenzimidazole by means of polymerization, polymerizing said monomer to produce said polybenzimidazole, and compatibilizing said polybenzimidazole and said acidic group-possessing polymer with each other to produce a compatibilized polymer; and

separating said compatibilized polymer from said solvent.

7. The method for producing said proton conductive solid polymer electrolyte according to claim 6, wherein polyphosphoric acid is used as said solvent.

8. The method for producing said proton conductive solid polymer electrolyte according to claim 6, wherein a polymer, which has said acidic group in an amount not less than 3×10^{-3} mole per gram of said acidic group-possessing polymer, is used as said acidic group-possessing polymer.

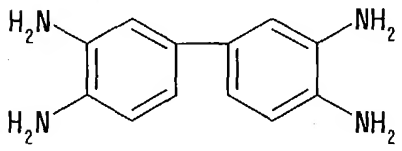
9. The method for producing said proton conductive

solid polymer electrolyte according to claim 6, wherein said monomer is subjected to dehydration polymerization in the presence of acid.

10. The method for producing said proton conductive solid polymer electrolyte according to claim 6, wherein a mixture of aromatic tetramine and aromatic dibasic acid is used as said monomer.

11. The method for producing said proton conductive solid polymer electrolyte according to claim 6, wherein an aromatic compound, which has a carboxylate ester group and a pair of amino groups bonded to an aromatic nuclear, said pair of amino groups being mutually positioned at ortho-positions, is used as said monomer.

12. The method for producing said proton conductive solid polymer electrolyte according to claim 10, wherein a compound represented by any one of the following chemical formulas (16) to (18) is used as said aromatic tetramine:



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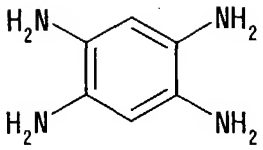

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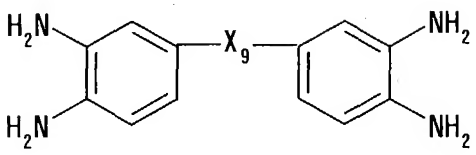
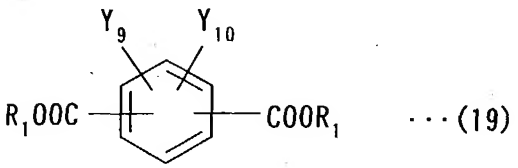


···(18)

wherein X9 is any one of O, S, SO_2, CH_2, and CO in said chemical formula (18).

13. The method for producing said proton conductive solid polymer electrolyte according to claim 10, wherein a compound represented by any one of the following chemical formulas (19) and (20) is used as said aromatic dibasic acid:



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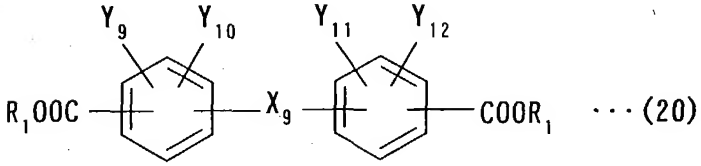

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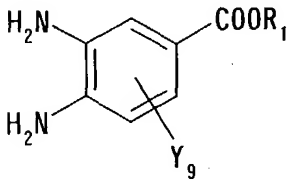
wherein Y9 to Y12 are functional groups independently selected from H, CH_3, C_2H_5, F, Cl, I, Br, and Ph, and R1 represents H, CH_3, C_2H_5, or Ph (phenyl group).

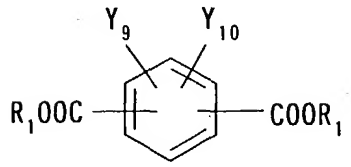
14. The method for producing said proton conductive solid polymer electrolyte according to claim 11, wherein a compound represented by the following chemical formula (21) is used as said aromatic compound:



···(21)

wherein Y9 is a functional group independently selected from H, CH_3, C_2H_5, F, Cl, I, Br, and Ph, and R1 represents H, CH_3, C_2H_5, or Ph (phenyl group).

15. The method for producing said proton conductive solid polymer electrolyte according to claim 12, wherein a compound represented by any one of the following chemical formulas and is used as said aromatic dibasic acid:



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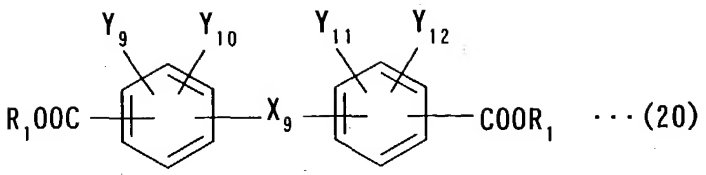

···(20)

wherein Y9 to Y12 are functional groups independently selected from H, CH_3, C_2H_5, F, Cl, I, Br, and Ph, and R1 represents H, CH_3, C_2H_5, or Ph.